TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

REMOTE DECONTAMINATION OF RH TRUW DEBRIS TO SUPPORT RECLASSIFICATION INTO NON-TRUW CATEGORY

Identification No.: RL-MW04
Date: October 2001

Program: Waste Management
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-CP02
Waste Stream: 1566 – RH TRU Stored/New, 3490 – M-91 Feed
TSD Title: 206 – M-91 Facility
Operable Unit (if applicable): N/A
Waste Management Unit (if applicable): N/A
Facility: Future M-91 Facility.

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" priority:

____ 1. Critical to the success of the ACPC.
_X_ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high life-cycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays).
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Remote Decontamination of RH TRUW Debris to Support Reclassification into LLW Category.

Need/Opportunity Category: *Technology Opportunity* – The Site desires an alternative to the current baseline technology.

Need Description: Another approach to the volume reduction of RH TRUW materials is to decontaminate the waste items. The objective is to remove the TRU contamination to a level acceptable for disposal as contact-handled (CH) TRUW or LLW. In addition, some decontaminated materials may be reused. Remote decontamination techniques may require substantial development as well as regulatory review and/or approval.

Schedule Requirements:

Earliest Date Required: 2007

Latest Date Required: 2013

Technology needs to be established between end of FY 2007 (conceptual design start) and 2013 (start of operations), to support the M-91 facility baseline.

***Problem Description*:** The anticipated sources of RH TRUW are the long-length contaminated equipment (LLCE) from Hanford site high-level waste (HLW) tanks (pumps, jumpers, and other ancillary equipment), the tank waste disposal program, and R&D (research and development) waste.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: Potential life cycle savings are estimated to be up to $5,000K. A total of 1,000 cubic meters of waste is projected. Cost estimate is based on a 10 percent volume reduction of waste at $50K per cubic meter.

Benefit to the Project Baseline of Filling Need: Potential cost savings from reducing volume of TRU waste.

Relevant PBS Milestone: A2G-08-109 M-91-15 Complete Acquisition of Facilities and Initiate Treatment of RH and Large Container (CH) LLMW

***Functional Performance Requirements*:** The decontamination system for RH TRU must effectively remove radionuclides from the debris and generate minimal amount of secondary waste, preferably in the solid form. Decontamination processes that produce liquid secondary waste streams would be inconsistent with the Sitewide effort to eliminate liquid waste. The system/equipment should have a high degree of reliability and must be easy to maintain and clean.

***Work Breakdown Structure (WBS) No.*:**	***TIP No.:***
1.2.2	Candidate

***Justification For Need*:**

Technical: Remote handling decontamination for large heavy items does not exist, and a system needs to be developed.

Regulatory: The M-91 Milestone which included a TRU/TRUM project management plan was completed June 2000, and specified a target date of September 2005 for award of commercial contracts to process RH and large-size TRU/TRUM.

Environmental Safety & Health: There are occupational health concerns associated with processing RH waste.

Cultural/Stakeholder Concerns: Increase the cost-effectiveness of the cleanup. Recycle and/or reuse materials and equipment.

Other: None identified

Current Baseline Technology: RH TRU waste will not be decontaminated to remove radionuclides that could allow RH TRU waste to be disposed at WIPP as CH TRU or re-categorized as non-TRU.

End-User: Waste Management

Contractor Facility/Project Manager: TBD.

Site Technical Point-of-Contact: Dale Black, Fluor Hanford, Inc. (FH), (509) 376-8458, Fax (509) 372-1441, Dale_G_Black@rl.gov.

DOE End-User/Representative Point-of-Contact: Kevin Leary, DOE-RL, (509) 373-7285, Fax (509) 372-1926, Kevin_D_Leary@rl.gov.

Waste volume, m^3	Existing (HAN05): 204 m^3 Existing (PUREX Tunnels): 1,672 m^3 Projected (HAN05-5 years): 1,690 m^3 Total: 3,566 m^3
Waste form	Large sizes and shapes of debris (e.g. failed equipment)
Waste stream I.D.	1566
Contaminants and co-contaminants	High alpha, beta, and gamma radiation
Function of technology	Decontamination
Source category	Various Hanford Site programs